MECABLITZ 44 AF-4 / 4i N

Bedienungsanleitung
Gebruiksaanwijzing
Manuale istruzioni
Mode d'emploi
Operating instruction
Manual de instrucciones

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Foreword

We congratulate you on purchasing this flash unit and thank you for your confidence in Metz products.

It is only natural that you should want to use your flash unit straight away. However, we recommend that you study these Operating Instructions beforehand to be able to fully exploit and utilize all the capabilities offered.

This flash unit can be used for Nikon cameras with TTL, D-TTL and i-TTL flash control (i-TTL only in conjunction with 44 AF-4i N). It is not suitable for cameras made by other manufacturers.

☞ ***Please also open the back cover page with the illustrations.***

1. Safety instructions

- **The flash unit is exclusively intended and approved for photographic use!**
- **Never fire a flash in the vicinity of flammable gases or liquids (petrol, solvents, etc.)!**
  DANGER OF EXPLOSION!
- **Never take flash shots of car, bus or train drivers, or of motorcycle and bicycle riders, whilst they are travelling. They could be blinded by the light and cause an accident!**
- **Never fire a flash in the immediate vicinity of the eyes! Flash fired directly in front of the eyes of a person or animal can damage the retina and lead to severe visual disorders - even blindness!**
- **Only use the approved power sources listed in the Operating Instructions!**
- **Do not expose batteries to excessive heat, sunshine, fire and the like!**
- **Never throw exhausted batteries on to a fire!**
- **Exhausted batteries should be immediately removed from the flash unit! Lye leaking out of spent batteries will damage the unit.**
- **Never recharge dry-cell batteries!**
- **Do not expose the flash unit or battery charger to dripping or splashing water (such as rain)!**
- **Protect the flash unit from excessive heat and humidity! Do not store the flash unit in the glove compartment of a car!**
- **Never place material that is impervious to light in front of, or directly on, the reflector screen. The reflector screen must be perfectly clean when a flash is fired. The high energy of the flash light will burn the material or damage the reflector screen if this is not observed.**
- **Do not touch the reflector screen after a series of flash shots. Danger of burns!**
- **Never disassemble the flashgun! DANGER: HIGH VOLTAGE! There are no components inside the flashgun that can be repaired by a layman.**
- **When taking a series of flash shots at full light output and fast recycling times as provided by NiCad battery operation, make sure to observe an interval of at least 10 minutes after 15 flashes, otherwise the flash unit will be overloaded.**
- **The flash unit may only be used in combination with a camera-integrated flash unit if the latter can completely be folded out!**
- **Quick changes in temperature may cause condensation. Therefore give the flashgun time to become acclimatized!**
- **Never use defective batteries!**

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Dedicated flash functions

Dedicated flash functions are flash functions that have been specifically adapted to a given camera system. The supported flash functions depend on the type of the camera used.

The following dedicated flash functions are supported by the flash unit:

- Flash-ready indication in camera's viewfinder
- Correct exposure indication in camera's viewfinder or display panel
- Underexposure warning on flash unit's display panel
- Automatic flash sync speed control
- TTL flash control (standard TTL without measuring preflash)
- Automatic fill-in flash control
- Matrix-controlled TTL fill-in flash mode
- 3D multi-sensor fill-in flash mode
- D-TTL and D-TTL 3D flash mode
- i-TTL and i-TTL-BL flash mode (i-TTL only in conjunction with 44 AF-4i N)
- Manual TTL flash exposure correction
- 1st or 2nd curtain synchronisation (REAR)
- Automatic motor zoom control
- Automatic AF measuring beam control
- Maximum flash range indication
- Programmed auto flash mode
- Preflash for red-eye reduction
- Triggering control / Auto Flash
- Wake-up function for the flash unit

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☞ ***It is impossible to describe in detail all camera types and their individual dedicated flash functions within the framework of these instructions. Therefore, please refer to the flash mode description in your camera's operating instructions to find out which functions are supported and which ones have to be set manually on the camera.***

Nikon cameras can be subdivided into the following groups according to their dedicated flash functions:

Cameras **Group A**	Cameras without digital data transfer to the flash unit e.g. Nikon F601, F601M, F60, F50, FM-3A Digital compact cameras "Nikon - Coolpix"
Cameras **Group B**	Cameras with digital data transfer to the flash unit e.g. Nikon F4, F4s, F801, F801s, Pronea 600i, 6
Cameras **Group C**	Cameras with digital data transfer to the flash unit and 3D multi-sensor fill-in flash mode e.g. Nikon F5, F100, F90X, F90, F80, F70
Cameras **Group D**	Digital Nikon single-lens reflex cameras with D–TTL flash mode e.g. D1, D1x, D1H, D100
Cameras **Group E**	Digital Nikon SLR cameras with i-TTL flash mode e.g. D70 The i-TTL flash mode is only supported by the 44 AF-4i N.

Table 1

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2. Preparing the flash unit for use

2.1 Mounting the flash unit

2.1.1 Mounting the flash unit on the camera

☞ ***Turn off the camera and the flash unit by their main switch!***

- Turn the knurled nut against the flash unit's housing until the stop point is reached. The locking pin in the adapter shoe is now fully retracted into the case.
- Slide the flash unit's foot completely into the camera's accessory shoe.
- Turn the knurled nut against the camera body as far as possible, thereby clamping the flash unit. If the camera does not have a locking hole the spring-loaded locking pin retracts into the adapter case so that it does not damage the surface.

2.1.2 Removing the flash unit from the camera

☞ ***Turn off the camera and the flash unit by their main switch!***

- Turn the knurled nut against the flash unit's housing until the stop point is reached.
- Withdraw the flash unit from the camera's accessory shoe.

2.2 Power supply

2.2.1 Suitable batteries

The flash unit can be operated with any of the following batteries:

- 4 NiCad batteries1.2 V, type IEC KR 15/51 (KR6, size AA). They permit very fast recycling and are economical in use because they are rechargeable.
- 4 nickel-metal-hydride batteries 1.2 V, type HR6 (size AA). They have a significantly higher capacity than NiCad batteries and are less harmful to the environment (no cadmium).
- 4 alkaline-manganese dry-cell batteries 1.5 V, type IEC LR6 (size AA). Maintenance-free power source for moderate power requirements.
- 4 lithium batteries 1.5 V, type IEC FR6 L91 (size AA). Maintenance-free high-capacity power source with a low self-discharge rate.

☞ ***Remove the batteries from the flash unit if it is not going to be used for an extended period of time.***

2.2.2 Replacing batteries (Fig. 1)

The batteries are exhausted if the recycling time (elapsing from the triggering of a full-power flash, e.g. in the M mode, to the moment the flash ready indicator lights up again) exceeds 60 seconds.

- Turn off the flash unit by its main switch.
- Slide the battery compartment cover in the direction of the arrow and fold open.
- Insert the batteries lengthwise in conformity with the indicated battery symbols and close the battery compartment cover.

☞ ***When loading batteries ensure correct polarity, as indicated by the symbols in the battery compartment. Mixed up battery poles may destroy the flash unit!***
Replace all batteries at a time and make sure that the batteries are of the same brand and type and have the same capacity!
Exhausted batteries must not be thrown in the dustbin! Help protect the environment and dispose of exhausted batteries at the appropriate collecting points.

2.3 Switching the flash unit on and off

The flash unit is switched on with the main switch on top of the battery compartment cover. In the upper „ON" position, the flash unit is on.

To turn off the flash unit push the main switch down to its bottom position.

☞ ***If your flash unit is not going to be used for an extended period of time, we recommend to switch it off with the main switch and to remove the power sources (batteries).***

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2.4 Auto-OFF for the flash unit (Fig. 2)

To save battery power and prevent inadvertent battery discharge, the flash unit is factory-set to automatically switch-over to standby mode (Auto-OFF), while flash readiness and the LC display are simultaneously switched off, approx. 3 minutes after:

- Switch-on
- Firing a flash
- Actuating the shutter release
- Switching off the camera's exposure metering system.

After automatic switch-off the last-used settings are retained and instantly available when the flash unit is switched on again. The flash unit is reactivated merely by depressing the „Mode" or „Zoom" key or by touching the shutter release (wake-up function).

☞ ***The flash unit should always be turned off by the main switch if it is not going to be used for an extended period!***

The Auto-OFF function can be deactivated whenever required:

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Turning off the Auto-OFF function

- Turn on the flash unit by its main switch.
- Continue depressing the key combination „Select" (= „Mode" key + „Zoom" key) until the LC display indicates „3m" (= 3 minutes).
- Continue depressing the „Zoom" key until „OFF" flashes on the LC display.
- The setting becomes immediately effective. The LC display returns to normal display after approx. 5 sec.

Turning on the Auto-OFF function

- Turn on the flash unit by its main switch.
- Continue depressing the key combination „Select" (= „Mode" key + „Zoom" key) until the LC display indicates „3m" (= 3 minutes).
- Continue depressing the „Zoom" key until „ON" flashes on the LC display.
- The setting becomes immediately effective. The LC display returns to its normal state after approx. 5 sec.

3. Programmed Auto Flash Mode (Full Auto Mode)

In Programmed Auto Flash Mode the camera controls the aperture and shutter speed, as well as the flash unit, automatically so that optimal results are always assured in most photographic situations, including fill-in flash.

Settings on the camera

Set your camera to program "P", "Vari" or a "Scene" Mode (landscape, portraiture, sport, etc.). Select the "Single-AF (S)" auto-focus mode on the camera. On various Nikon cameras (e.g. F5, F65, F80, F100), you must always set the highest f-number on the lens (see the camera's operating instructions).

☞ ***When using a Group A camera (see Table 1) or a lens without CPU (i.e. without electronic data transmission), the flash reflector's zoom position must be manually adjusted to the focal length of the lens (see 5.7.2)!***

☞ ***Use a tripod for the "Night Shots Program" to avoid the danger of camera shake in connection with slow shutter speeds!***

Settings on the flash unit

Flash mode with cameras of Groups A, B and C (see Table 1):

Set the flash unit in the "TTL" flash mode (see 4.1).

For Group B cameras it is possible to additionally set the matrix-controlled fill-in flash mode on the flash unit (see 4.1.2).

For Group C cameras it is possible to additionally set the 3D multi-sensor fill–in flash mode on the flash unit (see 4.1.3).

Flash mode with Group D cameras (see Table 1):

Set the flash unit in the D-TTL or D-TTL 3D flash mode (see 4.2).

Flash mode with Group E cameras (see Table 1):

Set the flash unit in the i-TTL or i-TTL BL flash mode (see 4.3).
The i-TTL flash mode is only supported by the 44 AF-4i N.

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As soon as the above settings have been made you can start shooting flash pictures when flash readiness is indicated (see 5.1).

4. Operating modes of the flash unit

4.1 TTL flash mode (Fig. 3)

The TTL flash mode is a very simple way to achieve excellent flash shots. In this mode exposure readings are taken by a sensor built into the camera which measures the light through the camera lens (TTL). The electronic control circuit within the camera transmits a stop signal to the flash unit after exposure by the correct amount of light, thereby instantly interrupting the flash. The advantage of this flash mode is that all factors influencing correct exposure (filters, change of aperture and focal length with zoom lenses, extensions for close-ups, etc.) are automatically taken into account. You need not worry about setting the flash, the camera's electronic system automatically determines the correct amount of flash light required. For the maximum flash range please observe the distances given in the flash unit's LC display (see 5.4) and the information in section 5.5. If flash exposure was correct, the flash unit's LC display indicates "o.k." for about 3 sec. (see 4.5).

The TTL flash mode is supported by all camera modes (e.g. Program "P", Aperture Priority Mode "A", Shutter Priority Mode "S", Vari or Scene Modes, Manual Mode "M", etc.).

☞ ***For analog cameras, a film must be loaded in the camera to test the TTL function. Please check whether limits regarding maximum film speed or ISO value (e.g. maximum ISO 1000) are applicable to the given camera when in TTL mode (refer to the camera's operating instructions)!***

☞ ***Various digital SLR cameras do not support the normal TTL flash mode of analog cameras. If the flash unit is used in conjunction with Group D cameras (see Table 1), the D-TTL or D-TTL 3D flash mode must be selected on the flash unit (see 4.2). When using the flash unit with Group E cameras (see Table 1) you must set the i-TTL or i-TTL BL flash mode (i-TTL only in conjunction with 44 AF-4i N) on the flash unit (see 4.3).***

Setting procedure for TTL flash mode

- Mount the flash unit on the camera.
- Switch on the flash unit and the camera.
- Continue depressing the "Mode" key until "TTL" flashes on the LC display.
- The setting becomes immediately effective. The LC display returns to its normal state after approx. 5 sec.

☞ ***Pronounced differences in contrast, e.g. a dark subject in snow, may make it necessary to correct the exposure settings (see 4.4).***

4.1.1 Automatic TTL fill-in flash in daylight (Fig. 5 and 6)

Most camera models automatically activate the fill-in flash mode when in auto program mode "P", Vari or a Scene mode in daylight (see the camera's operating instructions).

Fill-in flash overcomes troublesome dense shadows and produces a more balanced exposure between subject and background with contre-jour shots. The camera's computer-controlled metering system sets the most suitable combination of shutter speed, working aperture and flash output.

☞ ***Ensure that the contre-jour light source does not shine directly into the lens as this will mislead the camera's TTL metering system!***

In this instance there is no setting or display on the flash unit for automatic TTL fill-in flash.

4.1.2 Matrix-controlled TTL fill-in flash

In this flash mode the subject and the background lighting are automatically balanced without overexposing the subject. The camera establishes the exposure setting for the ambient light by matrix metering.

Various Nikon cameras support the matrix-controlled TTL fill-in flash mode (see operating instructions of the camera and Table 1).

☞ ***Some cameras (F4 or F4s for example) do not support the matrix-controlled TTL fill-in flash mode for SPOT exposure metering. This flash mode will then either be automatically cancelled or cannot be activated, so that the normal TTL flash mode will be performed.***

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When using Group A cameras (see Table 1), the matrix-controlled TTL fill-in flash mode is set on the camera or is automatically activated (see operating instructions of the camera). In this instance there is no setting or display on the flash unit.

When using Group B cameras (see Table 1), the matrix-controlled TTL fill-in flash mode is set and indicated on the flash unit.

- Mount the flash unit on the camera.
- Switch on both the flash unit and the camera.
- Lightly touch the camera's shutter release to induce a data exchange between flash unit and camera.
- Continue depressing the "Mode" key until "TTL " flashes on the LC display.
- The setting becomes immediately effective. The LC display returns to its normal state after approx. 5 sec.

Deactivating the matrix-controlled TTL fill-in flash mode

- Continue depressing the "Mode" key on the flash unit until "TTL" (**without** the symbol) flashes on the LC display.
- The setting becomes immediately effective. The LC display returns to its normal state after approx. 5 sec.

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4.1.3 3D multi-sensor fill-in flash

This flash mode optimizes a balanced exposure between subject and background. Prior to exposure a series of almost invisible measuring preflashes are fired by the flash unit. These are evaluated by the TTL multi-sensor and the camera's micro-controller. The camera then adapts TTL flash exposure optimally to the given photographic situation ("multi-sensor fill-in flash"). When "D-AF-Nikkor" lenses are used, the camera-to-subject distance will be additionally taken into account when determining the optimal flash output ("3D multi-sensor fill-in flash mode").

Different cameras from Group C in Table 1 support the "3D multi-sensor fill-in flash".

☞ ***Some cameras (e.g. F5, F80 and F100) do not support the 3D multi-sensor fill-in flash mode for SPOT exposure metering. This flash mode will then either be automatically cancelled or it cannot be activated so that the normal TTL flash mode will be performed.***

Setting the "3D multi-sensor fill-in flash mode" on the flash unit

- Mount the flash unit on the camera.
- Switch on the flash unit and the camera.
- Lightly touch the camera's shutter release to induce a data exchange between the flash unit and the camera.
- Continue depressing the "Mode" key until "TTL " flashes on the LC display.
- The setting becomes immediately effective. The LC display returns to its normal state after approx. 5 sec.

☞ ***When a lens without CPU is used, some cameras will only support the matrix-controlled fill-in flash mode or the standard TTL flash mode. In such cases the 3D multi-sensor fill-in flash cannot be activated. The flash unit's LC display will then indicate the corresponding display for the current flash mode.***

Deactivating the "3D multi-sensor fill-in flash"

- Continue depressing the "Mode" key on the flash unit until "TTL" **without** symbol " " flashes on the LC display.
- The setting becomes immediately effective. The LC display returns to its normal state after approx. 5 sec.

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4.2 D-TTL flash mode

☞ ***This flash mode is only possible in conjunction with digital Nikon SLR cameras of Group D (see Table 1). Digital SLR cameras do not support the normal TTL flash mode of analog cameras.***

The D-TTL flash mode is an advanced variant of the normal TTL flash mode of analog cameras. Prior to shooting a series of weakly visible measuring preflashes are fired by the flash unit. The camera evaluates the reflected preflash light so that the subsequent flash exposure is optimally adapted to the prevailing photographic situation (see operating instructions of your camera).

Setting procedure

- Mount the flash unit on the camera.
- Switch on the flash unit and the camera.
- Lightly touch the camera's shutter release for data exchange between flash unit and camera.
- Continue to depress the "Mode" button until "D-TTL" flashes on the LC display.
- The setting becomes instantly effective. The LC display returns to its normal state after approx. 5 sec.

4.2.1 D-TTL 3D flash mode

In this mode with D-TTL flash control (see above) the camera additionally takes into account the flash-to-subject distance.

☞ ***This flash mode is only available with "D-AF Nikkor lenses". Some cameras do not support the D-TTL 3D flash mode for SPOT exposure metering. This flash mode will then either be automatically cancellled or it cannot be activated so that the normal D-TTL flash mode will be performed.***

To set the D-TTL 3D flash mode the flash head must be in the normal position, i.e. it must not be swivelled down.

For D-TTL 3D flash mode, both the camera and the lens must support the evaluation of distance data (see operating instructions for the camera and specifications of the lens).

Setting procedure

- Mount the flash unit on the camera.
- Switch on the flash unit and the camera.
- Lightly touch the camera's shutter release to induce a data exchange between the flash unit and the camera.
- Continue depressing the " MODE " key on the flash unit until "D TTL" and the " " symbol flash in the LC display.
- The setting becomes immediately effective and is automatically saved after 5 seconds.

4.3 i-TTL flash mode

☞ ***This flash mode is only available for Nikon digital SLR cameras of Group E (see Table 1) in conjunction with the 44 AF-4i N flash unit. The standard TTL flash mode of analog cameras is not supported by the digital SLR cameras.***

i-TTL flash mode is an advanced variant of the standard TTL flash control of analog cameras. When shooting a picture, several weakly visible preflashes are fired by the flash unit prior to exposure. The camera then evaluates the reflected preflash light so that the subsequent flash exposure is optimally adapted to the prevailing photographic situation (see operating instructions of the camera).

Setting procedure

- Mount the flash unit on the camera.
- Switch on the flash unit and the camera.
- Lightly touch the camera's shutter release to induce a data exchange between the flash unit and the camera.
- Continue depressing the " MODE " key on the flash unit until " TTL " flashes in the LC display. When using Group E cameras, the i-TTL flash mode is automatically activated on the flash unit. The " i " symbol is not indicated.
- The setting becomes instantly effective and is automatically saved after 5 sec.

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4.3.1 i-TTL BL flash mode

In this mode with i-TTL flash control (see above) the camera additionally takes into account data relating to the flash-to-subject distance.

☞ ***This flash mode is only possible in conjunction with " D-AF Nikkor lenses ". Some cameras do not support the i-TTL BL flash mode for SPOT exposure metering. This flash mode will then either be automatically cancelled or it cannot be activated so that the normal i-TTL flash mode will be performed.***

For the i-TTL BL flash mode, both the camera and the lens must support the evaluation of distances (see operating instructions for the camera and specifications for the given lens). Some cameras only support the i-TTL flash mode for SPOT exposure metering. The i-TTL BL flash mode can then not be activated.

Setting procedure

- Mount the flash unit on the camera.
- Switch on the flash unit and the camera.
- Lightly touch the camera's shutter release to induce a data exchange between the flash unit and the camera.
- Continue to depress the " MODE " button on the flash unit until "TTL" and the symbol flash on the LC display. The "i" symbol is not indicated.
- The setting becomes instantly effective and is automatically saved after 5 sec.

4.4 Manual TTL flash exposure correction

The TTL auto flash mode of most cameras is matched to a 25 % degree of light reflection by the subject (average amount of light reflected by subjects shot with flash). Consequently, a dark background that absorbs a great deal of light, or a bright background that reflects a great deal of light, can result in under- or overexposure, respectively.

To offset this effect a correction value can be set on some cameras to manually match the TTL flash exposure (or D-TTL flash exposure / i-TTL flash exposure on digital SLR cameras) to the photographic situation. The actual extent of correction depends on the contrast prevailing between subject and background!

☞ ***A dark subject in front of a bright background: Positive correction value. Light subject in front of a dark background: Negative correction value. Correction value settings can change the maximum flash range indicated on the flash unit's LC display and match it to the given correction value (depends upon the camera model)!***

Exposure correction by changing the lens diaphragm is not possible because the camera's automatic exposure system will automatically regard the changed diaphragm as the normal working aperture.

☞ ***After the exposure do not forget to reset the TTL flash exposure correction back to the normal value on the camera!***

☞ ***Depending on the given type of camera, the manual TTL flash exposure correction must be set either on the camera or on the flash unit. Please refer to the indications given in the corresponding camera manual.***
When using a Group A camera (see Table 1) this setting must always be made on the camera. It cannot be made on the flash unit.

Setting on the flash unit

- Mount the flash unit on the camera.
- Switch on the flash unit and the camera.
- Lightly touch the camera's shutter release to induce a data exchange between the flash unit and the camera.
- Continue depressing the "Select" key combination (= "Mode" key + "Zoom" key) until **EV** (Exposure Value) is indicated on the LC display. Alongside **EV**, the set correction value is flashing on the display.
- While the correction value is flashing, a positive value can be adjusted with the "Zoom" key, and a negative value with the "Mode" key.

The setting range for the correction value extends from -3EV to +1EV in 1/3 stop increments.

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The setting becomes immediately effective. After approx. 5 sec. the LC display returns to its normal state.

If the camera is used with a CPU lens, then **EV** will flash alongside the aperture symbol on the flash unit's LC display to indicate that a manual correction value has been set for flash exposure.

If the camera is used with a lens without CPU, then the adjusted manual correction value for flash exposure will be displayed on the flash unit in place of the aperture symbol and the **EV** exposure value. Instead of the maximum flash range, the flash unit indicates its guide number. To determine the maximum flash range of the flash unit please refer to the formula given in section 5.4.6.

☞ ***Many cameras offer the facility to set a manual correction value directly on the camera. In such an instance we advise setting the correction value either on the camera or on the flash unit.***

Cancelling manual TTL flash exposure correction on the flash unit

- Continue depressing the "Select" key combination (= "Mode" key + "Zoom" key) until **EV** is indicated on the LC display.
- The set correction value flashes alongside **EV** on the display.
- While the correction value is flashing, set the correction value at **0.0** with the "Zoom" key or the "Mode" key, thereby cancelling manual TTL flash exposure correction.

The setting becomes immediately effective. After approx. 5 sec. the LC display returns to its normal state.

4.5 Correct exposure indication in TTL flash mode (Fig. 4)

The "o.k." correct exposure confirmation only appears in the flash unit's LC display if the shot was correctly exposed in TTL flash mode or its corresponding advanced variants (e.g. 3D-TTL, D-TTL, D-TTL 3D, i-TTL, i-TTL BL, etc.).

If "o.k." is not displayed after the exposure, then this means that the shot was underexposed. The shot will then have to be repeated with the next smaller f-number (e.g. f/8 instead of f/11) or the distance to the subject or the reflecting surface (e.g. when bouncing the flash) must be reduced. Please observe the maximum flash range indicated on the flash unit's LC display (see 5.4.1) and the information given in section 5.5.

☞ ***Also refer to section 5.3 regarding correct exposure indication in the camera's viewfinder!***

4.6 Underexposure warning in TTL flash mode

In certain modes (for example "P" and "A"), some Group C, D and E Nikon cameras listed in Table 1 will give underexposure warning for flash shots by way of aperture increments (EV) on the flash unit's LC display (see operating instructions of the camera).

If the "OK" correct exposure confirmation does not light up on the flash unit after a flash shot was taken, or if the flash symbol in the camera viewfinder flashes, then the flash unit's LC display briefly indicates the underexposure value between -0.3 EV and -3.0 EV in one-third increments.

In borderline instances it may occur that "o.k." is not displayed on the flash unit but the flash symbol in the camera viewfinder flashes. In such an event the exposure will nevertheless be correct.

☞ ***To enable underexposure indication, the TTL mode or an advanced variant of TTL flash mode (e.g. 3D-TTL, D-TTL 3D, i-TTL, i-TTL BL, etc.) must be set on the flash unit.***

4.7 Manual flash mode

Set "A" aperture priority or the manual mode "M" or "X" on the camera. Select the aperture and shutter speed (with "M") on the camera according to the given photographic situation (see the camera's operating instructions).

4.7.1 Manual flash mode M with full light output

In this mode the flash unit always fires uncontrolled flashes at full light output. Adaptation to the given photographic situation is by selecting a corresponding aperture setting on the camera. When using Group C, D and E cameras, the flash unit's LC display will indicate the flash-to-subject distance required for a correct exposure (see also 5.4.2).

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Setting procedure for the manual flash mode M

- Turn on the flash unit by its main switch.
- Continue depressing the "Mode" key until "M" flashes on the LC display.
- The setting becomes immediately effective. The LC display returns to its normal state after approx. 5 sec.

4.7.2 MLo manual flash mode with partial light output levels

In this mode the flash unit always fires an uncontrolled flash at a manually set partial light output level (Low). Adaptation to the prevailing photographic situation is by selecting an appropriate partial output level or by setting a corresponding aperture on the camera. The flash unit's LC display panel will indicate the distance required for correct flash exposure (also see 5.4.2).

Setting procedure for the manual flash mode MLo

- Turn on the flash unit with the main switch.
- Continue depressing the "Mode" key until "MLo" flashes on the LC display.
- The setting becomes instantly effective. After about 5 sec. the LC display returns to its normal state.

GB

4.8 Flash techniques

4.8.1 Bounce flash

Photos shot with full frontal flash are easily recognized by their harsh, dense shadows. This is often associated with a sharp drop in light from the foreground to the background. This phenomenon can be avoided with bounce flash because the diffused light will produce a soft and uniform rendition of both the subject and the background. For this situation the reflector is turned in such a manner that the flash is bounced off a suitable reflective surface (e.g. ceiling or wall of the room).

The reflector can be turned vertically up to 90°. The reflector head is mechanically interlocked in its basic position. Press the pushbutton to unlock and turn the reflector head.

When turning the reflector vertically, it is essential to ensure that it is moved by a sufficiently wide angle so that direct light can no longer fall on the subject. Consequently, always turn the reflector at least to the 60° lock-in position. The distance readings on the LC display will disappear. The flash-to-subject distance via the ceiling or wall is an unknown magnitude.

The light bounced off the reflecting surfaces produces a soft and uniform illumination of the subject. The reflecting surface must be white or have a neutral colour, and it must not be structured (e.g. wooden beams in a ceiling) as these might cause shadows. For colour effects just select the reflective surface in the desired colour.

☞ ***Take into account that the maximum flash range is considerably diminished when bouncing the flash. The following rule of thumb will help you determine the maximum flash range for a room of normal height:***

$$\text{Maximum flash range} = \frac{\text{guide number}}{\text{lighting distance} \times 2}$$

4.8.2 Close-ups / Macrophotography

The flash reflector can be swivelled down by an angle of -7° to compensate for parallax error. For this purpose depress the unlocking button of the reflector and fold down the reflector.

For close-ups it is necessary to ensure that certain minimum lighting distances are maintained to avoid overexposure.

☞ ***The minimum lighting distance is approx. 10 per cent of the maximum flash range indicated on the LC display. Since the maximum flash range is not indicated on the LC display when the reflector is swivelled down, then be guided by the maximum flash range indicated by the flash unit when the reflector is in its normal position!***

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4.9 Flash synchronisation

4.9.1 Normal synchronisation (Fig. 7)

In normal synchronisation the flash unit is triggered at the beginning of the exposure time (1st curtain synchronisation). Normal synchronisation is the standard mode on all cameras, and is suitable for most flash shots. Depending upon the given mode, the camera is changed over to flash sync speed, the customary one being between 1/30th sec. and 1/125th sec. (see the camera's operating instructions). No settings have to be made on the flash unit, nor is there any display for this mode.

4.9.2 REAR - Second-curtain synchronisation (Fig. 8)

Some cameras offer the facility of second-curtain synchronisation (REAR mode) triggering the flash unit by the end of the exposure time. Second-curtain synchronisation is particularly advantageous when using slow shutter speeds (slower than 1/30 sec.) or when shooting moving objects that have their own source of light. Second-curtain synchronisation gives a more realistic impression of movement because the light streaks behind the light source instead of building up in front of it, as is the case when the flash is synchronised with the 1st shutter curtain! Depending on its operating mode, the camera uses shutter speeds slower than its sync speed.

On some cameras the REAR function is not possible in certain operating modes (e.g. specific Vari or Scene modes or Red Eye Reduction, see 5.9). In such an instance, the REAR mode cannot be selected or the REAR function is automatically cancelled or ignored. Please refer to the operating instructions for the given camera.

☞ ***Depending on the type of camera used, second curtain synchronisation (REAR) must either be set on the camera (cameras of Group A, C, D and E; see Table 1; + Pronea 600i) or on the flash unit (Group B cameras). Please refer to the information given in the corresonding camera manual.***
The REAR mode is indicated on the flash unit only if the setting was made on the flash unit.

Activating the REAR mode on the flash unit in conjunction with Group B cameras

- Mount the flash unit on the camera.
- Switch on the flash unit and the camera.
- Lightly touch the camera's shutter release to induce a data exchange between the flash unit and the camera.
- Continue depressing the "Select" key combination (= "Mode" key + "Zoom" key) until "REAR" appears on the LC display.
- Continue depressing the "Zoom" key until "On" flashes on the LC display.
- The setting becomes immediately effective. The LC display returns to its normal state after approx. 5 sec.

The "REAR" symbol for 2nd curtain synchronisation continues to be indicated on the flash unit's LC display after it has been set!

☞ ***Always use a tripod to avoid camera shake with slow shutter speeds! Do not forget to switch off this function after exposure, otherwise unintended slow shutter speeds will continue to be used for "normal" flash shots.***

Deactivating the REAR mode on the flash unit

- Continue depressing the "Select" key combination (= "Mode" key + "Zoom" key) until "REAR" appears on the LC display.
- Continue depressing the "Zoom" key until "OFF" flashes on the LC display.
- The setting becomes immediately effective. The LC display returns to its normal state after approx. 5 sec.

The "REAR" symbol for 2nd curtain synchronisation is no longer indicated by the flash unit's display. The flash unit is then once again synchronised with the first curtain (normal) synchronisation.

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4.9.3 Slow synchronisation / SLOW

In certain operating modes, some cameras permit slow flash synchronisation ("SLOW") which will provide added prominence to the background at lower ambient light levels. This is achieved by matching the shutter speed to the ambient light. Accordingly, shutter speeds slower than the flash sync speed (e.g. shutter speeds up to 30 s) are automatically adjusted by the camera. Some cameras automatically activate SLOW synchronisation in connection with certain programs (e.g. night shots program, etc.) or permit slow synchronisation to be set (see camera's instruction manual). No settings are made on the flash unit nor is there any display for this mode.

☞ ***Use a tripod to avoid camera shake with slow shutter speeds!***

5. Flash unit and camera functions

5.1 Flash readiness indication

The flash readiness symbol ↯ lights up on the flash unit when the flash capacitor is charged, thereby indicating that flashes can be fired for the next shot. Flash readiness is also transmitted to the camera for corresponding display in the viewfinder (see 5.3).

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If a picture is shot before flash readiness is signalled in the camera's viewfinder, then the flash unit will not be triggered so that the exposure may be incorrect if the camera has changed over to flash sync speed in the meantime (see 5.2).

5.2 Automatic flash sync speed control

Depending upon the camera model and camera mode, the shutter speed is changed to flash sync speed when flash readiness is reached (see the camera's operating instructions).

Shutter speeds faster than the flash sync speed cannot be set or will automatically be converted to flash sync speed. Various cameras have a sync speed range, e.g. 1/30th sec. to 1/125th sec. (see the camera's operating instructions). The actual sync speed set by the camera depends upon the camera mode, the ambient light and the focal length of the lens used.

Shutter speeds slower than the flash sync speed can be set, depending upon the given camera model and the selected flash synchronisation (see also 4.9.2 and 4.9.3).

☞ ***Various digital cameras do not provide automatic flash sync speed control. They are equipped with a diaphragm shutter and permit the use of flash at all shutter speeds. Should you require the full light output of the flash unit we recommend not to use shutter speeds faster than 1/125 sec.***

5.3 Displays in the camera viewfinder

Green flash symbol ↯ illuminated

Command to switch on or use the flash unit.

Red flash symbol ↯ illuminated

The flash unit is ready for firing.

Red flash symbol ↯ remains illuminated after shooting or goes out momentarily

The exposure was correct.

Red arrow symbol ↯ flashes after shooting

The shot was underexposed.

☞ ***Refer to the operating instructions to establish whatever is applicable to the displays in the viewfinder for the given camera model.***

5.4 Information in the LC display

Nikon cameras of Group B, C, D and E (see Table 1) transmit the ISO, focal length of the lens (mm) and f-stop to the flash unit and the flash unit then automatically adapts its settings accordingly. The flash unit calculates the maximum flash range from these values and its own guide number. Flash mode, maximum flash range, aperture and zoom reflector position are all indicated on the flash unit's LC display.

If the flash unit is operated without having received any data from the camera (e.g. when the camera is switched off or if a camera from Group A is being used), then only the selected flash mode, the reflector position and "M.Zoom" will be displayed. The aperture and the maximum flash range will

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only be displayed after the flash unit has received the corresponding data from the camera.

☞ ***Auto Zoom, aperture and maximum flash range are only displayed in conjunction with Group B, C, D and E cameras (see Table 1) if these are fitted with an AF lens or a lens with CPU.***

5.4.1 Maximum flash range indication in TTL flash mode

The flash unit's LC display indicates the maximum flash range. The indicated value relates to a factor of 25 % of light reflection by the subject, which applies to most photographic situations. Pronounced deviations from this reflection factor, e.g. highly reflective or poorly reflecting objects, can influence the maximum flash range of the flash unit.

Always observe the maximum flash range indicated by the flash unit's LC display. The subject should be within approx. 40 % to 70 % of the indicated value. This gives the electronic circuit sufficient scope for compensation. To avoid overexposure, the minimum flash-to-subject distance should not be less than 10 % of the indicated value. Adaptation to the given photographic situation is possible by changing the aperture setting on the lens.

5.4.2 Maximum flash range indication in manual flash modes M and MLo

The flash unit's LC display indicates the distance to be maintained for correct exposure of the subject. Adaptation to the given photographic situation is achieved by changing the aperture setting on the lens and selecting either "M" for full light output or "MLo" for partial light output (see 4.7).

5.4.3 Exceeding the display range

The flash unit can indicate a maximum range of 199 m or 199 ft. This display range can be exceeded in the event of high ISO values (e.g. ISO 6400) and large aperture openings. An arrow or triangle after the distance value indicates that the display range has been exceeded.

5.4.4 Blanking out the maximum flash range display

The flash unit's LC display does not indicate any distances when the reflector head is swivelled up or down out of its normal position!

5.4.5 "FEE" error indication on the flash unit's LC-display

On some cameras and in some camera modes (e.g. program "P", Vari-programs, "S" shutter priority mode) it is necessary to set the aperture ring of the lens to the maximum f-number. Otherwise the message "FEE" (= error) will be indicated on the flash unit's LC-display or the camera. In such an instance please check the settings on the camera or lens (see operating instructions of the camera).

5.4.6 Guide number indication when using lenses without CPU

Lenses without CPU (i.e. without electronic data transmission) do not transmit to the camera any electric information about focal length and aperture setting. If such a lens is used on a Group B, C, D and E camera, then the flash unit will only receive from the camera the data relating to ISO. The position of the zoom reflector must be set manually (see 5.7.2).

In conjunction with certain cameras, the flash unit's LC display indicates, in this instance, the guide number for the current setting instead of the distance. The maximum flash range is the result of the following formula:

$$\text{Maximum flash range} = \frac{\text{guide number}}{\text{aperture}}$$

☞ ***Refer to the instructions regarding the flash-to-subject distance in section 5.5. The guide number is not indicated when the reflector is folded down.***

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5.4.7 Meter-Feet changeover (m - ft)

The maximum flash range indicated by the flash unit's LC display can be either in meter (m) or feet (ft). To change between the two, proceed in the following manner:

- Turn off the flash unit by its main switch.
- Keep the "Select" key combination depressed (= "Mode" key + "Zoom" key).
- Turn on the flash unit by its main switch.
- Release the "Select" key combination (= "Mode" key + "Zoom" key).
- The flash range indication changes from m to ft or from ft to m.

5.5 Determining the maximum flash range with the guide number table

Group A cameras do not transmit to the flash unit the ISO, aperture and focal length data. Consequently, the flash unit's LC display will not indicate the camera's aperture and the maximum flash range. In such an event you can determine the maximum flash range with the help of Table 2 listed in the Addendum (see section 10).

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Use the following formula:

$$\text{Maximum flash range} = \frac{\text{guide number}}{\text{aperture}}$$

☞ ***This formula does not apply to bounce flashes, e.g. when the reflector is folded down!***

Example:

The lens has a focal length of 50 mm and ISO is 100. The guide number given for this combination in Table 2 in the Addendum is 34. Set on the camera or lens the aperture f/4, for example. The above formula can now be used to calculate the maximum flash range:

$$\text{Maximum flash range} = \frac{\text{guide number } 34}{\text{aperture } 4} = 8{,}5 \text{ m}$$

For the manual flash mode "M" at full light output this means that the distance to the subject should be 8,5 m to obtain correct exposure results.

For TTL flash mode this means that 8,5 m should be the maximum distance to the subject. However, to give the camera's electronic system sufficient scope for light output control the subject should be positioned somewhere between 40 % and 60 % of the calculated range. For the above example this means a distance of between 3,4 m and 5,1 m. For close-ups it is necessary to ensure that a minimum distance of 10 % of the calculated value is observed in order to avoid overexposure. For the above example the minimum distance is 10 % of 8,5 m = 0,85 m.

☞ ***Please note that the maximum flash range is related to subjects with a 25 % reflectivity which applies to most shooting situations. Pronounced deviations from this reflectivity, e.g. highly or poorly reflective subjects, can influence the maximum flash range of the flash unit.***

5.6 LC display illumination

Keep the "Mode" or "Zoom" key depressed for approx. 10 sec. to activate the flash unit's LC display illumination. The LC display illumination is switched off when a flash is triggered.

☞ ***The settings on the flash unit are not changed when the above keys are pressed for the first time!***

If the shot was correctly exposed in TTL flash mode, then the LC display illumination will be activated during "o.k." display (see 4.5).

5.7 Motor zoom reflector

The reflector's illumination angle equals the coverage of a lens of 24 mm focal length.

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5.7.1 "Auto Zoom"

If the flash unit is operated with a Group B, C, D or E camera with CPU lens, its zoom reflector position will be automatically adapted to the focal length of the lens. When the flash unit is turned on, the LC display will indicate "Auto Zoom" and the current reflector position.

Automatic reflector adaptation commences with focal lengths as of 24 mm. If a lens with a focal length of less than 24 mm is used, the value "24" mm or will start to flash on the LC display to warn you of vignetting because the flash unit will not fully illuminate the picture right out to the image corners.

☞ ***For lenses with focal lengths as of 20 mm a wide-angle diffuser can be used (optional extra, see section 7). The flash head must then be set to the 24 mm position.***

5.7.2 Manual zoom mode "M. Zoom"

With Group A cameras, or when a lens without CPU is used (e.g. manual focus lens), it is necessary to adjust the flash reflector's zoom position manually to the focal length of the lens. In this case, auto-zooming is not possible. The flash unit's LC display indicates "M.Zoom" (for manual zoom setting) and the current zoom position (mm).

- The following reflector positions can be selected by repeated depression of the "Zoom" key:

24 mm - 28 mm - 35 mm - 50 mm - 70 mm - 85 mm - 105 mm.

No warning is given if the zoom reflector setting is incorrect!

☞ ***If you do not always need the full guide number and maximum flash range of the flash unit you can leave the zoom reflector at the position for the shortest focal length of the zoom lens. This will provide full light coverage of the image corners and eliminate the need for permanent adaptation to the lens focal length.***

Example:
A zoom lens with a focal length range of 35 mm to 105 mm is being used: In this case set the flash unit's zoom reflector to 35 mm.

5.7.3 Manual zoom mode instead of "Auto Zoom"

When using Group B, C, D and E cameras with CPU lenses, the position of the zoom reflector can be manually changed, for instance to achieve specific lighting effects (e.g. hot-spot, etc.). Repeated depression of the "Zoom" key on the flash unit will successively select the following reflector positions:

24 mm - 28 mm - 35 mm - 50 mm - 70 mm - 85 mm - 105 mm

The flash unit's LC display indicates "M.Zoom" for manual zoom setting and the current zoom position (mm). The setting becomes instantly effective. The display is switched back to its normal state after approx. 5 sec.

☞ ***If manual adjustment of the zoom reflector results in vignetting so that the flash will not cover the image corners, then the reflector position indicated on the flash unit's display will start flashing as a warning.***

Example:
- *You are using a lens focal length of 50 mm.*
- *A reflector position of 70 mm has been manually adjusted on the flash unit ("M.Zoom" is displayed).*
- *"70" mm for the zoom position starts flashing on the flash unit's LC display because the image corners will not be fully illuminated.*

Returning to "Auto Zoom"

There are various ways to return to "Auto Zoom":

- Continue pressing the "Zoom" key on the flash unit until "Auto Zoom" appears on the display. The setting becomes instantly effective. The LC display returns to its normal state after approx. 5 sec.

Or:

- Briefly turn off the flash unit by its main switch. When the flash unit is turned on again the display of the flash unit will indicate "Auto Zoom".

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5.7.4 Extended zoom mode

The extended zoom mode (Ex) reduces the focal length setting of the flash unit by one step as compared to the focal length of the camera lens! The resulting wider light coverage inside rooms provides additional stray light (reflections) to achieve a softer flash illumination.

Example of extended zoom mode:
The focal length set on the camera lens is 35 mm. The extended zoom mode sets a 28 mm reflector position on the flash unit but 35 mm continues to be indicated on the LC display!

The extended zoom mode is only possible in the "Auto Zoom" mode with Group B, C, D and E cameras as listed in Table 1 and CPU lenses with focal lengths as of 28 mm.
Since the inititial position of the zoom reflector is 24 mm, a focal length of less than 28 mm will cause "24" mm to flash on the LC display thereby warning the user that the required reflector position for the extended zoom mode cannot be set.

☞ ***Shots taken with a 24 mm focal length setting will be correctly illuminated right out to the image corners by the flash unit also in extended zoom mode!***

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Turning on the extended zoom mode

- Continue depressing the "Select" key combination (= "Mode" key + "Zoom" key) until "Ex" appears on the LC display.
- Continue depressing the "Zoom" key until "On" flashes on the LC display.
- The setting becomes instantly effective. The LC display returns to its normal state after approx. 5 sec.

After the setting procedure, the "Ex" symbol for the extended zoom mode will continue to be indicated on the flash unit's LC display!

☞ ***Please note that the wider illumination coverage in extended zoom mode results in a diminished maximum flash range!***

Turning off the extended zoom mode

- Continue depressing the "Select" key combination (= "Mode" key + "Zoom" key) until "Ex" appears on the LC display.
- Continue depressing the "Zoom" key until "OFF" flashes on the LC display.
- The setting becomes instantly effective. The LC display returns to its normal state after approx. 5 sec.

The "Ex" symbol for the extended zoom mode will no longer be indicated on the flash unit's LC display!

5.8 AF measuring beam

The AF measuring beam is activated by the camera electronics when the ambient lighting conditions are insufficient for automatic focusing. The AF beam emitter projects a striped pattern on to the subject, and the camera uses this pattern to focus automatically. The AF beam has a range of approx. 6 m to 9 m (with a 50 mm/f/1.7 standard lens). Parallax error between lens and AF red light emitter limits the close-up range of the AF measuring beam to approx. 0.7 m - 1 m.

☞ ***The AF mode "Single-AF (S)" must be set on the camera so that the AF measuring beam can be activated by the camera (see the camera's operating instructions). Zoom lenses with a small initial lens aperture may significantly reduce the range of the AF measuring beam!***
The striped pattern of the AF measuring beam only supports the camera's central AF sensor. When using cameras with several AF sensors we recommend to only activate the camera's central AF metering area (see the camera's operating instructions). If a decentral AF sensor is manually selected by the photographer, or automatically by the camera, then the emitter of the flash unit's AF measuring beam will not be activated.
In such instances some cameras will use the AF illuminator integrated in the camera (see operating instructions of the camera).

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5.9 Preflashes for red-eye reduction

Red eyes are always the result of a physical effect. It arises whenever a person looks more or less straight into the camera , the ambient light is relatively dark, and the flash unit is mounted on or directly next to the camera. The flash unit illuminates the back of the eyes, revealing the blood-filled retina through the pupil. This is recorded by the camera as a red spot in the eyes.

The red-eye reduction facility brings about a significant improvement in this respect. When this function is used, the flash unit triggers three weakly visible preflashes prior to shutter operation, which are followed by the main flash. These preflashes induce the pupils to close down, thereby diminishing the red-eye effect.

The preflash function is set on the camera. An activated preflash function is indicated on the camera's LC display by a corresponding symbol (see operating instructions of the camera). There is no setting made on the flash unit, nor an information given on the flash unit's display.

The preflash function for red-eye reduction is only possible with cameras that support this mode (see operating instructions of the camera)!

On some cameras, the red-eye reduction will only support the flash unit built into the camera or an extra illuminator incorporated in the camera body (see operating instructions of the camera)!

Second curtain synchronisation (REAR) will not work when the preflash function is used!

5.10 AUTO FLASH / Triggering control

Some cameras prevent the triggering of a flash if the existing ambient light is sufficient for an exposure in normal mode. No flash will be fired when the camera's shutter release is pressed. On various cameras, the triggering control function only works in the full auto mode or Program "P" or it must be activated on the camera (see camera manual).

5.11 Return to basic setting

The flash unit returns to its basic setting when the "Mode" key is kept depressed for at least three seconds.

The following settings are adjusted:

- The "TTL" flash mode.
- The "Auto-OFF" (3m On) function is activated.
- The automatic zoom mode "Auto Zoom".
- The extended-zoom mode "Ex" is cancelled.
- The flash exposure correction value on the flash unit is cancelled.
- The REAR function on the flash unit is deactivated.

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6. Special remarks concerning the cameras

The multitude of camera models and their features make it impossible to detail all camera-specific capabilities, settings, displays, etc. For more details concerning the operation of a flash unit please refer to the corresponding chapters in the operating instructions for the given camera!

6.1 Special functions not supported in flash mode

6.1.1 Program shift

A program shift (paired shutter/aperture setting) cannot be carried out in the programmed auto mode P when the flash unit is switched on (see operating instructions of the camera).

GB

7. Optional extras

☞ ***No guarantee is given for malfunctions and damage to the flash unit caused by the use of accessories from other manufacturers!***

- **20 mm wide-angle diffuser**
  (Item No. 000044217)
  For full illumination in conjunction with lenses of 20 mm and up. The range is reduced by the factor 1.4 due to the corresponding loss of light.
- **Colour filter set 44-32**
  (Item No. 00004432A))
  Consists of 4 colour filters to achieve special lighting effects, plus a clear filter to hold colour foils in any colour.
- **Mecabounce 44-90**
  (Item No. 000044900)
  A diffuser to achieve soft illumination in the simplest possible manner. The effect is very impressive because the pictures are given a very soft atmosphere. Facial colours are rendered more naturally. However, loss of light halves the maximum flash range.
- **Bounce diffuser 54-23**
  (Item No. 000054236)
  The soft directed light diminishes dense shadows.

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8. Advice in the event of a fault

Should the LC display indicate meaningless information or should the flash unit not work properly in the individual modes, then switch off the flash unit for about 10 seconds by its main switch. Check the camera settings and find out if the flash unit's foot is correctly mounted in the camera's accessory shoe. The flash unit must operate properly when it is switched on again. Contact your local dealer should this not be the case.

9. Maintenance and care

Remove any grime and dust with a soft, dry or silicon-treated cloth. Never use detergents that could damage plastic parts.

Forming the flash capacitor

The flash capacitor incorporated in the flash unit undergoes a physical change when the flash unit is not switched on for prolonged periods of time. For this reason it is necessary to switch on the flash unit for approx. 10 minutes every 3 months (see 2.4!). The batteries must supply sufficient power for flash readiness to be indicated within 1 minute after the flash unit was switched on.

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10. Technical data

Maximal guide number at ISO 100/21°, 105 mm zoom:
In the metric system: 44; in the imperial system: 144

Flash durations:
Approx. 1/200th to 1/20,000th sec. (in TTL mode)
In M mode approx. 1/200th sec. at full light output
In MLo mode approx. 1/200th sec.

Colour temperature:
approx. 5600 K

Film speed:
ISO 6 to ISO 6400

Synchronisation:
Low-voltage ignition

Number of flashes:
approx. 85 with NiCad batteries (600 mAh)
approx. 205 with NiMH batteries (1200 mAh)
approx. 240 with high-capacity alkaline manganese batteries
(at full light output)

Recycling time:
approx. 4 s with NiCad batteries
approx. 4 s with NiMH batteries
approx. 5 s with high-capacity alkaline manganese batteries
(at full light output)

Swivelling range and locking positions of flash head:
Upwards / downwards: 60°, 75°, 90° / -7°

Dimensions approx. in mm:
75 x 125 x 108 (W x H x D)

Weight:
Flash unit with power sources: approx. 400 g

Included:
Flash unit, Operating Instructions

Disposal of batteries

Do not dispose of spent batteries with domestic rubbish.

Please return spent batteries to collecting points should they exist in your country!

Please return only fully discharged batteries.

Normally, batteries are fully discharged if:

- The device they powered switches itself off and indicates "Spent Batteries".
- They no longer function properly after prolonged use.

To ensure short-circuit safety please cover the battery poles with adhesive tape.

Errors excepted. Subject to changes!

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ISO	Zoom						
	24	**28**	**35**	**50**	**70**	**85**	**105**
6/9°	5,9	6,4	6,9	8,3	9,3	10	11
8/10°	6,6	7,4	7,9	10	11	12	12
10/11°	7,4	8,2	8,9	11	12	13	14
12/12°	8,4	9,0	10	12	13	15	15
16/13°	9,4	10	11	14	15	17	18
20/14°	10	12	13	15	17	19	20
25/15°	11	13	14	17	19	21	22
32/16°	13	15	16	19	21	24	25
40/17°	14	16	18	22	24	27	28
50/18°	16	18	20	24	27	30	31
64/19°	18	21	22	27	30	34	35
80/20°	21	23	25	30	34	38	39
100/21°	23	**26**	**28**	**34**	**38**	**42**	**44**
125/22°	26	29	31	38	42	47	49
160/23°	29	36	35	43	48	53	56
200/24°	33	37	40	48	54	59	62
250/25°	37	41	44	54	60	66	70
320/26°	42	47	50	61	68	75	79
400/27°	47	52	56	68	76	84	88
500/28°	53	58	63	76	85	94	98
640/29°	59	66	71	86	96	106	111
800/30°	67	74	79	96	107	119	124
1000/31°	75	82	89	108	120	133	139
1250/32°	84	92	99	120	134	148	156
1600/33°	95	104	112	136	152	168	176
2000/34°	106	116	125	152	170	188	197
2500/35°	119	130	140	170	190	210	220
3200/36°	134	147	158	192	215	238	249
4000/37°	151	164	177	215	240	266	278
5000/38°	169	184	198	240	269	297	311
6400/39°	190	208	224	272	304	336	352

Tabelle 2 / Tableau 2 / Tabel 2 / Table 2 / Tabella 2 / Tabla 2

Leitzahlentabelle für TTL und volle Lichtleistung M im Meter-System
Leitzahl (ft) = Leitzahl (m) x 3,3

Tableau des nombres-guides pour TTL et pleine puissance M en mètres
nombre-guide (ft) = nombre-guide (m) x 3,3

Richtgetallentabel voor TTL en vol vermogen M in het metersysteem
Richtgetal (ft) = Richtgetal (m) x 3,3

Guide number table for TTL and full light output M in the imperial system
Guide number (ft) = Guide number (m) x 3.3

Tabella numeri guida per TTL e potenza piena M in metri
Numeri guida (ft) = Numeri guida (m) x 3,3

Tabla de números guía para TTL y plena potencia de luz M en el sistema de pies
Números guía (ft) = Números guía (m) x 3,3

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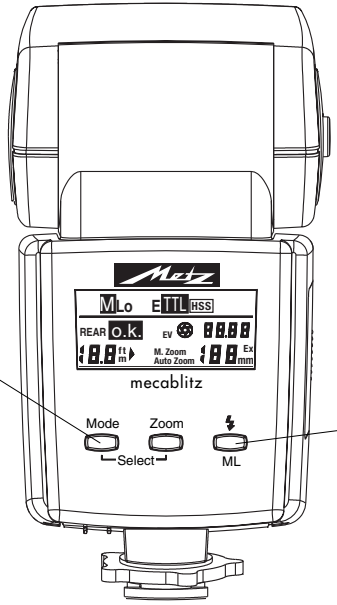

Betriebsartenwahl
Sélecteur de mode
Functieschakelaar
Mode selector
Selettore del modo
di funzionamento
Selección de modos
de funcionamiento

Handauslösetaste und Blitzbereitschaftsanzeige
Bouton d'essai et témoin de recyclage
Ontspanknop voor handbediening en flitsaparaat-aanduiding
Manual firing button and flash-ready indicator
Pulsante test (emissione manuale del lampo) e indicazione di "pronto lampo"
Tecla de disparo manual e indicación de disposición de disparo

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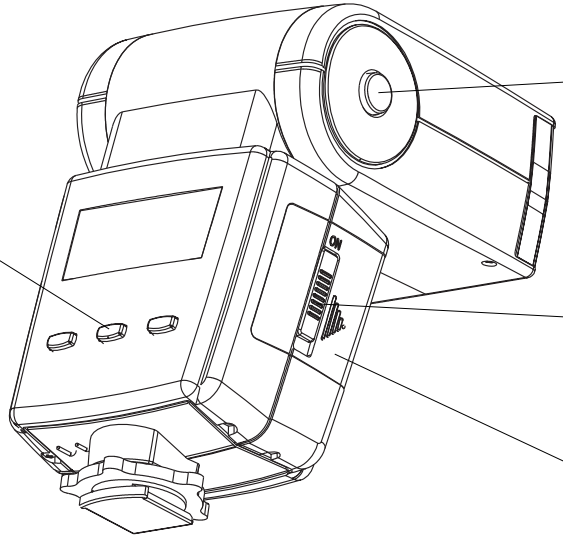

Zoom

Displaybeleuchtung
Eclairage de l'écran
Diaplayverlichting
Display lighting
Tasto di illuminazione del display
Iluminación de display

Entriegelungsknopf Hauptreflektor
Bouton de déverrouillage pour réflecteur
Ontgrendelingsknop Hoofdreflector
Unlocking button for the main reflector
Pulsante di sblocco della parabola principale
Botón de desbloqueo del reflector principal

Hauptschalter
Interrupteur général
Hoofdschakelaar
Main switch
Interruttore principale
Interruptor principal

Batteriefachdeckel
Couvercle du compartiment des piles
Deksel batterijvak
Battery compartment lid
Coperchio del vano batteria
Tapa del compartimento de pilas

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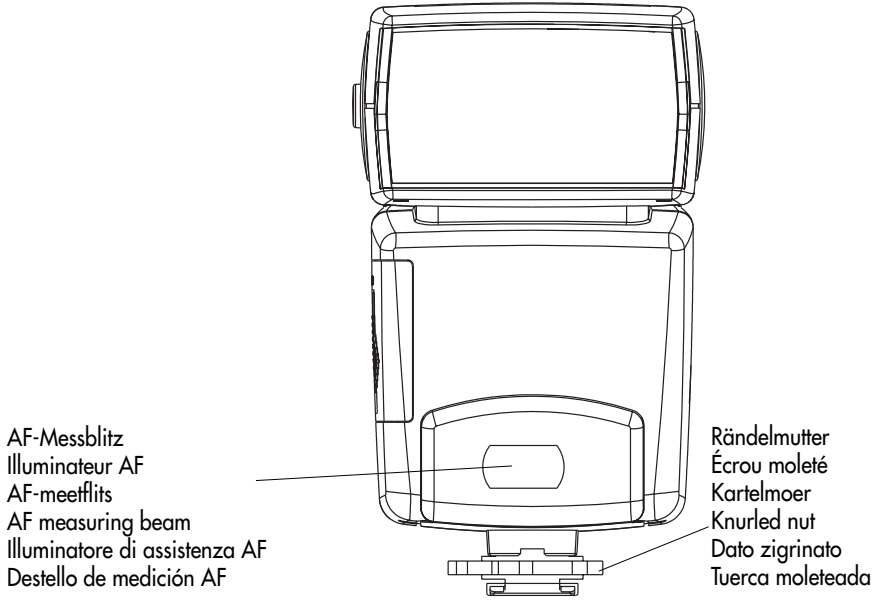

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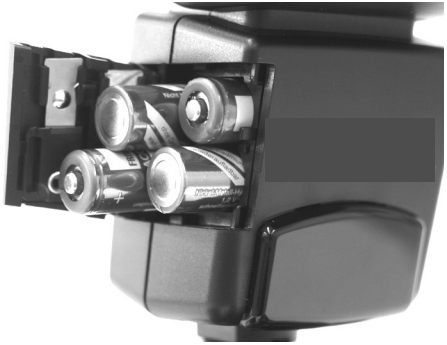

Bild 1 / Fig. 1 / Afb. 1 / Grab. 1

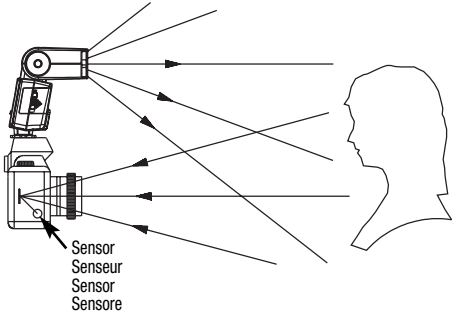

Bild 3 / Fig. 3 / Afb. 3 / Grab. 3

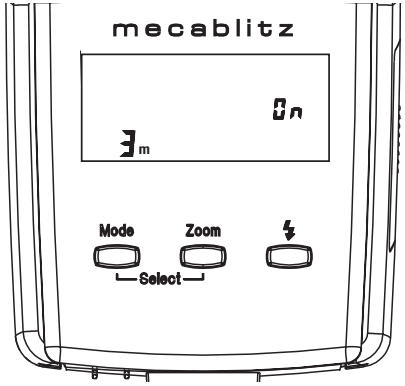

Bild 2 / Fig. 2 / Afb. 2 / Grab. 2

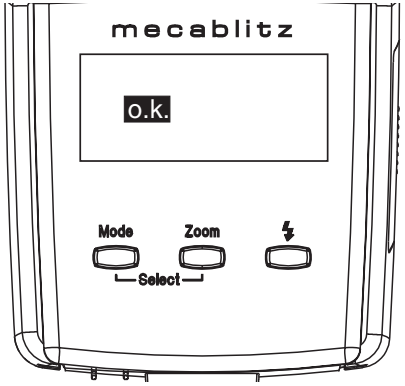

Bild 4 / Fig. 4 / Afb. 4 / Grab. 4

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Bild 5 / Fig. 5 / Afb. 5 / Grab. 5

Bild 7 / Fig. 7 / Afb. 7 / Grab. 7

Bild 6 / Fig. 6 / Afb. 6 / Grab. 6

Bild 8 / Fig. 8 / Afb. 8 / Grab. 8

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Hinweis: (D)

Im Rahmen des CE-Zeichens wurde bei der EMV-Prüfung die korrekte Belichtung ausgewertet.

⚠ Kontakte nicht berühren !

In Ausnahmefällen kann eine Berührung zur Beschädigung des Gerätes führen.

Opmerking: (NL)

In het kader de CE-markering werd bij de EMV-test de correcte be-lichting bepaald.

⚠ Contacten niet aanraken !

In uitzonderlijke gevallen kan aanraken leiden.

Avvertenza: (I)

Nell'ambito delle prove EMV per il segno CE è stata valutata la corretta esposizione.

⚠ Non toccate mai i contatti !

In casi eccezionali il toccare può causare danni all'apparecchio.

Remarque: (F)

L'exposition correcte a été évaluée lors des essais de CEM dans le cadre de la certification CE.

⚠ Ne pas toucher les contacts !

Il paut arriver que le contact avec les doigts provoque la dégradation de l'appareil.

Note: (GB)

Within the framework of the CE approval symbol, correct exposure was evaluated in the course of the electromagnetic compatibility test.

⚠ Do not touch the contacts !

In exceptional cases the unit can be damaged if these contacts are touched.

Atención: (E)

El símbolo CE significa una valoración da exposición correcta con la prueba EMV (prueba de tolerancia electromagnética).

⚠ No tocar los contactos !

En algunos casos un contacto puede producir daños en el aparato.

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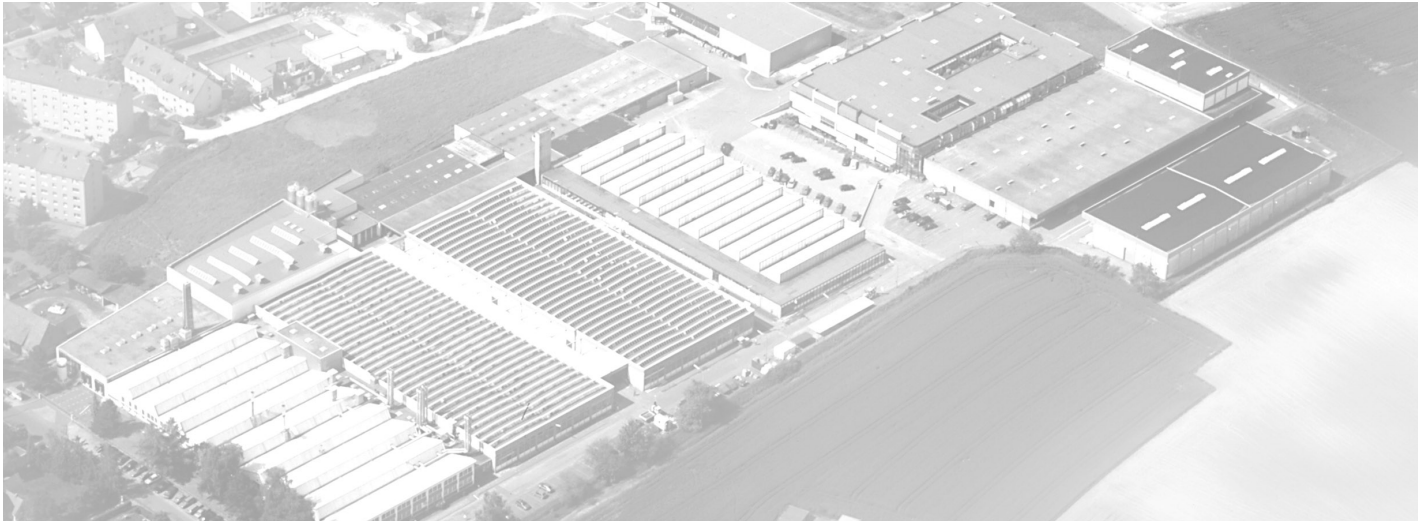

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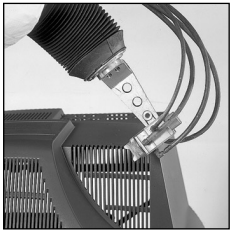
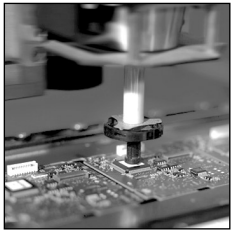
Consumer electronics

Photoelectronics



Plastics technology



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